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NOTE BY THE SECRETARY-GENERAL

The Secretary-General has the honour to transmit to the members of the Security Council the attached communication which he has received from the Acting Director General of the International Atomic Energy Agency (IAEA).

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Annex

Letter dated 11 April 1996 from the Acting Director General of the International Atomic Energy Agency to the Secretary-General

In paragraph 8 of its resolution 715 (1991) of 11 October 1991, the Security Council requested the Director General of the International Atomic Energy Agency to submit to the Council reports on the implementation of the Agency's plan for future ongoing monitoring and verification of Iraq's compliance with paragraph 12 of resolution 687 (1991). Those reports were to be submitted when requested by the Security Council and, in any event, at least every six months after the adoption of resolution 715 (1991).

In paragraph 16 of its resolution 1051 (1996) of 27 March 1996, the Security Council called for the consolidation of the periodic requirements for progress reports under resolutions 699 (1991), 715 (1991) and 1051 (1996), and requested the Director General to submit such consolidated reports every six months to the Council, commencing on 11 April 1996.

Accordingly, I am requesting you kindly to transmit to the President of the Security Council the enclosed first such consolidated semi-annual report under paragraph 16 of resolution 1051 (1996). The Director General remains available for any consultations you or the Council may wish to have.

(Signed) Sueo MACHI
Acting Director General

Appendix

First consolidated report of the Director General of the International Atomic Energy Agency under paragraph 16 of resolution 1051 (1996)

I. INTRODUCTION

1. On 11 October 1991, the Security Council adopted resolution 715 (1991) approving, inter alia, the plan submitted in document S/22872/Rev.1 and S/22872/Rev.1/Corr.1 by the Director General of the International Atomic Energy Agency (IAEA) for future ongoing monitoring and verification of Iraq's compliance with paragraph 12 of Part C of Security Council resolution 687 (1991) and with the requirements of paragraphs 3 and 5 of resolution 707 (1991). In paragraph 8 of resolution 715, the Security Council requested the Director General of the IAEA to submit to it reports on the implementation of the plan when requested by the Security Council and, in any event, at least every six months after the adoption of resolution 715. [1]

2. On 27 March 1996, the Security Council adopted resolution 1051 in which it approved the mechanism developed by the Special Commission, the IAEA and the Committee established under resolution 661 (1990) for the monitoring of future sales or supplies to Iraq of items identified in the revised annexes to the plans of the IAEA and of the Special Commission for future ongoing monitoring and verification. The Security Council recognized the mechanism as an integral part of the ongoing monitoring and verification by the IAEA and the Special Commission. In paragraph 16 of resolution 1051, the Security Council called for the consolidation of the periodic requirements for progress reports under resolutions 699 (1991), 715 (1991) and resolution 1051 (1996), and requested the Director General of the IAEA to submit such consolidated reports every six months to the Council, commencing on 11 April 1996.

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1 The Director General has so far submitted eight reports, circulated on 15 April 1992, as S/23813; on 28 October 1992, as S/24722; on 19 April 1993, as S/25621; on 3 November 1993, as S/26685; on 22 April 1994, as S/1994/490; on 10 October 1994, as S/1994/1151; on 11 April 1995, as S/1995/287, supplemented on 21 July with S/1995/604; and on 6 October 1995, as S/1995/844.

3. The Director General submits herewith the first such consolidated report under paragraph 16 of resolution 1051 (1996).

II. INSPECTION ACTIVITIES

A. IAEA-28 AND IAEA-29 INSPECTION MISSIONS

4. An ad hoc inspection mission - IAEA-28 - was sent to Iraq from 9 to 19 September 1995 to follow up on information received by the IAEA since the departure from Iraq of Lt. General Hussein Kamel. These follow up activities were continued in an additional ad hoc inspection mission - IAEA-29 - which was sent to Iraq from 17 to 24 October 1995 comprising a team of IAEA inspectors, assisted by experts in centrifuge and in nuclear weapon design and technologies provided by Member States.

5. Detailed reports on IAEA-28 and IAEA-29 were transmitted to the Council as documents S/1995/1008 dated 1 December 1995 and S/1996/14 dated 10 January 1996. Since then additional discussions have taken place with the Iraqi counterpart to clarify the following matters:

a) <u>The research reactor project</u>

6. The history of the development of an indigenous nuclear reactor was discussed with the Iraqi counterpart in November 1995. The discussions opened with a description by the counterpart of the scope of Iraq's planned nuclear power programme which had originated in 1975 and, with international assistance, had developed from modest plans to acquire a single 600 MWe unit, to involve the progressive construction of four to six power plants by the year 2010. Although these plans had been further modified in the mid 1980s, no practical progress had been made in the acquisition of nuclear power plants other than the identification of four possible sites suitable for their location.

7. The counterpart explained that Iraq's feasibility studies on the underground siting of reactors and other fuel cycle related installations had been aimed exclusively at providing protection from aerial attack and that the strategy had been abandoned due to its prohibitive cost.

8. The counterpart further explained that, although it had been managed by the same IAEC department responsible for Iraq's nuclear power programme, project 182, relating to the construction of a research reactor, had been an entirely separate study. This project - which foresaw the construction of an indigenous research reactor to replace the capability that would have been provided by the Osirak (Tamuz-1) research reactor - had originated in 1984/85 after the breakdown of Iraq's negotiations with France for the rebuilding of the Osirak reactor. The project 182 reactor was explained to have been a natural uranium - heavy water type, similar to the Canadian NRX reactor, and that, as the project had become more defined, in 1987 and 1988 studies had concentrated on the design of the reactor core. As this work progressed it was recognised that considerable IAEC and foreign resources would be needed to bring the study to fruition and in mid-1988, while still in the study phase, the project was allowed to lapse due to lack of available resources resulting from the nigher priority needs of the EMIS enrichment and weapon development programmes. The counterpart also stated that studies on the indigenous production of heavy water had not progressed beyond surveys of technical literature and preliminary laboratory measurements.

9. To support their statements the counterpart referred to a small number of documents handed over to the inspectors of IAEA-29. Although the analysis of these new documents and recent intelligence tends to confirm the declarations made by the counterpart in November 1995, additional follow up is still needed to bring project 182's file to a satisfactory close.

b) Uranium enrichment

10. During the month of December 1995 the Secretariat, assisted by experts from Member States, held discussions with the counterpart to further explore the progress that had been made in chemical (solvent extraction) and ion-exchange methods for the enrichment of uranium, before the outbreak of the Gulf war. The counterpart stated that full disclosure of these activities had already been made during the talks which took place during the early (1991) inspections, and maintained that this information was corroborated by the original documentation obtained during the IAEA-6

inspection. However the discussions focused on obtaining additional technical details on activities and achievements.

11. The counterpart reconfirmed that all of the activities carried out had taken place at the Nuclear Research Centre, Tuwaitha, except for the production of tri-n-butyl phosphate (TBP) which, together with some theoretical work on crown ethers, had been done at the Muthanna State Establishment. The motivation to develop the chemical enrichment process had been Iraq's wish to enhance the capability of the EMIS process by feeding low enriched, instead of natural, uranium. Iraqi research in solvent extraction processes for uranium enrichment appears to have been limited to basic laboratory-scale work, but the counterpart expressed confidence that they could have addressed the practical problems that would have arisen during scaling-up, and were in the process of procuring components for a pilot plant to produce four tonnes per year of 1 to 1.5 % enriched uranium.

12. They stated that ion exchange enrichment was promising, but that a lot of work was needed, as experience with ion exchange was limited in Iraq. The results of laboratory scale experiments, using indigenously produced ion exchange resins, were stated to have been modest and a similar project for a pilot plant to produce four tonnes per year of up to 3% enriched uranium had not gone beyond the preliminary assessment of equipment and material requirements. According to the counterpart, their most promising project, though still at the conceptual design stage in late 1990, combined both enrichment methods in an hybrid process having a solvent extraction first stage and an ion exchange output stage, in order to produce up to 5 tonnes per year of 4 to 8% enriched uranium.

13. The counterpart was also asked to further clarify the achievements made with respect to the production of diffusion barriers and compressors, which are key components of gaseous diffusion enrichment technology. The counterpart confirmed that the First Group of PC-3 had continued their work in these areas after their relocation from Tuwaitha to the Engineering Design Centre (Rashdiya) and that some significant achievements had been attained in the development of anodised aluminium barriers. They had been able to demonstrate the corrosion resistance of the barrier material to UF_6 and had achieved measurable uranium isotopic separation. However,

according to the counterpart, this activity, carried out in 1989, had not progressed beyond the qualification of a single barrier.

14. In parallel to barrier studies, attempts to reverse-engineer compressors had been made, in co-operation with Iraq's Specialised Institute for Engineering Industries. However they maintained that these attempts had not been successful. The counterpart stated that all activities related to gaseous diffusion had been stopped in 1989 and priority given to exploiting the progress made in gas centrifuge enrichment technology.

c) Nuclear weapon missile delivery vehicle

15. Iraq's nuclear weapons programme, as planned in 1988, foresaw the production of the first weapon in 1991. However, the nuclear weapon in the mid-1988 conceptual design was deemed to be far too heavy to be delivered by missile. Consequently the PC-3 Fourth Group (Weaponisation) had been advised to further develop the design "with a view to reducing the total weight of the projectile (payload) to about one ton or less"

16. From discussions with the counterpart, undertaken by the IAEA with assistance from a missiles expert provided by the Special Commission, it appears that three delivery vehicle options were pursued:

- Option 1: the longer term plan was for a delivery vehicle based on the engine that was being developed to power the second stage of the Al Abid satellite launcher. This vehicle would have had a payload chamber of 1.25 metres diameter and the capability to deliver a warhead of at least one tonne to a range of almost 1,200 kms. Practical work on this engine did not start until April 1989 and, according to the counterpart, this nuclear weapon delivery vehicle option would not have been complete until 1993 - two years after the first nuclear weapon was supposed to have been produced.

- Option 2: Iraq's stated fall-back option was to use an essentially unmodified Al Hussein missile and to accept a range limitation of 300 km.

- Option 3: although discounted as impracticable by the counterpart, it seems reasonable to suppose that the shorter term - crash programme - option was the attempt, stated to have been initiated in August/September 1990, to produce a derivative of the Al Hussein/Al Abbas missile designed to deliver a warhead of one tonne up to 650 kms and to accommodate a nuclear package of 80 cm diameter.

17. It is difficult to evaluate these options without detailed knowledge of Iraq's nuclear weapons strategy including how that strategy might have evolved up to 1991 and how the strategy might have changed in response to the international reaction to Iraq's invasion of Kuwait. However it is reasonable, based on statements by the counterpart, to suppose that the first device, produced from indigenous HEU, would not have been available before late 1992. Equally, if it is accepted that Iraq's strategy was to acquire a small nuclear arsenal before testing, it is likely that the need to demonstrate a delivery capability would not have arisen until 1994. In this context, the development of the vehicle in option 1 above, which should have been completed in 1993, was compatible with the overall programme.

18. If Iraq's nuclear strategy had always included the option to divert safeguarded HEU to enable them to produce a nuclear weapon by 1991, then the delivery vehicle in the first option was clearly not going to be available and work on an alternative vehicle - perhaps the third option - should have originated much earlier than August 1990. This situation is consistent with the rationale that the diversion of the HEU from safeguards and the development of an interim delivery vehicle were uniquely components of a "crash programme" devised in August/September 1990 and quite separate from the long term programme to acquire a nuclear weapons capability.

B. ONGOING MONITORING AND VERIFICATION ACTIVITIES

a) Operations

19. During the period October 1995 - April 1996, the Baghdad-based IAEA Nuclear Monitoring Group has carried out some 155 monitoring inspections at 65 locations of which 16 were carried out at locations which had not been previously inspected. The majority of these inspections were carried out with no prior announcement and one such inspection, carried out in co-operation with monitoring staff of the UN Special Commission, took place during the night. No indication of prohibited equipment, materials or activities was detected.

20. The Nuclear Monitoring Group, in co-operation with the counterpart, arranged for the repackaging of the inventory of natural uranium tetrachloride from the severely corroded steel drums to corrosion resistant high density plastic containers. The opportunity was taken to re-verify the quantity of this nuclear material and to place it under individual IAEA seals. The counterpart continue to provide practical co-operation to facilitate the implementation of the operational activities of the IAEA.

b) Technical developments

21. A geographic position logger, developed and donated by the Government of the United States, was successfully commissioned. This device, which measures and stores geographic position against time, is now in use in the air sampling programme which uses road vehicle and helicopter-based collection systems. It is expected to use the geoposition logger with other transportable sensors.

c) Video surveillance

22. Video surveillance is used individually and jointly by the IAEA and UNSCOM to assist in the monitoring of activities at Iraqi facilities. The surveillance systems have the capabilities both to record locally and to transmit the video signals via radio telephone links, to the Baghdad Monitoring Verification Centre (BMVC). These capabilities have recently been extended to allow the video signals to be transmitted to the IAEA

headquarters via satellite telephone links and viewed in the Action Team Operations Office in Vienna.

C. PROCUREMENT MATTERS

23. The active co-operation of the Member States involved has made it possible to locate a carbon fibre filament winding machine, whose procurement was initiated by Iraq in mid-1990 for use in the production of rotors for uranium enrichment gas centrifuges. The winding machine was shipped from Switzerland, in February 1991, through Singapore, and was received in Jordan in July 1991, where it has remained until located in November 1995. The final disposition of the machine - whose location was notified to the IAEA by Jordanian authorities in February 1996 - is yet to be determined but its discovery represents the successful conclusion to an investigation into Iraq's clandestine procurement activities started in May 1994 on the basis of information obtained from open sources.

D. EXPLOITATION OF THE DOCUMENTATION CACHE

24. As previously reported, the so-called "Haider House documentation cache", declared to have been withheld on the express orders of the late Hussein Kamel Hassan Al Majid, was subject to immediate review before being transferred from the BMVC to IAEA Headquarters Vienna. Since that time, additional documentation has been provided by the counterpart to the extent that the augmented documentation library now contains what appears to be an almost complete series of the 1,572 technical reports issued by PC-3 and a large number of drawings of the various designs of gas centrifuge machines. The documentation library has been further exploited to provide even fuller understanding of the activities undertaken by Iraq in the area of weaponisation and uranium enrichment technologies. In the latter area, the IAEA has been assisted by experts from Member States, who have carried out a thorough review of the centrifuge enrichment information in order to determine the extent of foreign assistance received by Iraq. The organisation of the documentation library and its further exploitation is an ongoing task of the IAEA's Action Team.

E. PROVISION OF INFORMATION BY IRAQ

25. The reporting requirements stipulated in paragraph 22 and Annex 2 of the Plan are being fulfilled regularly at six-month intervals by the Iraqi authorities.

26. In January 1996, the semi-annual update was provided on facilities, installations and sites where nuclear activities of any kind have been carried out or which in the IAEA's judgement could be suitable for hosting nuclear activities. The update is also required to include sites and facilities where material and equipment identified in the Annex 3 of the IAEA's Plan are located. In this report the Iraqi authorities provided detailed information on 17 additional facilities bringing the total number of sites declared by Iraq under paragraph 22 of the Plan to 189. The large number of documents provided by Iraq since 20 August 1995 may contain information on hitherto undeclared sites and facilities which had been connected with the covert nuclear programme. In this case, Iraq will have to submit detailed information to enable the IAEA to decide if the inclusion of these sites or facilities in the monitoring regime is warranted.

F. FULL, FINAL AND COMPLETE DECLARATION (FFCD)

27. The report on the IAEA's twenty-eighth inspection mission to Iraq recorded the need for a radical revision to the FFCD required of Iraq in accordance with paragraph 3 of Security Council resolution 707 (1991). In response, a 1019 page document was provided, by Iraq, to IAEA staff at the BMVC on 1 March 1996. The document, still in draft form, is composed of six volumes. The table of contents of the FFCD draft is attached to this report. The assessment of the FFCD is proceeding as a high priority task and discussions with the counterpart will be scheduled without delay in order to clarify matters not fully covered in the declaration.

G. RELEASE, RELOCATION AND CHANGE OF THE USE OF EQUIPMENT, MATERIALS AND FACILITIES

28. Through the channel of the Iraqi National Monitoring Directorate (NMD) the IAEA receives requests for the release or relocation of equipment and materials, as well as requests for permission to change the use of monitored buildings. All NMD requests are processed in consultation with the Special Commission. In the period under review, five such requests were received from the NMD, one of which was approved. The remaining four requests are still pending. Items for which release, relocation or change of use is approved remain subject to ongoing monitoring and verification at a frequency commensurate with their significance.

H. THE EXPORT/IMPORT MONITORING MECHANISM

29. Pursuant to paragraph 7 of Security Council resolution 715 (1991), a mechanism for the monitoring of sales and supplies to Iraq of items relevant to the implementation of section C of resolution 687 (1991) and other relevant resolutions, including resolution 715 and the plans approved thereunder, was developed by the Committee established under resolution 661 (1990) (the Sanctions Committee), the Special Commission and the IAEA. The mechanism provides for notification by Iraq of intended imports of those items identified by the IAEA and the Special Commission in the revised annexes to their respective plans for ongoing monitoring and verification (documents S/1995/208 and Corr.1 and S/1995/215 and Corr. 1 and 2). It also provides for notification by supplier States of planned supplies of such items to Iraq. The notifications are to be submitted to the IAEA and the Special Commission through a joint unit, located in New York, constituted by the IAEA and the Special Commission. Thereafter, Iraq would be required to declare the arrival, and end use, of such items in Iraq. Those declarations would be subject to verification by the IAEA and the Special Commission under their plans.

30. On 27 March 1996, acting under Chapter VII of the Charter of the United Nations, the Security Council unanimously approved the mechanism in resolution 1051. The resolution requires implementation of the mechanism by Iraq as from a date to be agreed upon by the IAEA, the Special Commission and Iraq, but in any event not later than sixty days from the

adoption of the resolution (i.e., 27 May 1996). All other States must begin to notify the joint unit of intended exports to Iraq as from the date the Secretary-General and the Director General of the IAEA report to the Security Council, after consultations with members of the Security Council and other interested States, that they are satisfied with the preparedness of States for the effective implementation of the mechanism. The Security Council further decided that all States are to be provided, not later than 45 days after the adoption of resolution 1051, by the Special Commission and the IAEA with information necessary to make preparatory arrangements at the national level prior to the implementation of the provisions of the mechanism.

31. As recognized by the Security Council, the export/import mechanism is an integral part of ongoing monitoring and verification by the Special Commission and the IAEA. The mechanism is not a regime for international licensing, but rather for the timely provision of information by States of sales or supplies to Iraq of items covered by the plans for ongoing monitoring and verification. As further recognized by the Council, the mechanism "will not impede Iraq's legitimate right to import or export for non-proscribed purposes, items and technology necessary for the promotion of its economic and social development".

32. Finally, the Security Council decided to consolidate the periodic requirements for progress reports under resolutions 699 (1991), 715 (1991) and resolution 1051 and to request the Secretary-General and the Director General of the IAEA to submit such consolidated progress reports every six months to the Council, commencing on 11 April 1996.

III. SUMMARY

33. The IAEA continues with the rigorous implementation of its plan for the monitoring and verification of Iraq's compliance with the relevant Security Council resolutions through the resident inspectors of the Nuclear Monitoring Group with the assistance of, and in full co-ordination with, the Special Commission. During the period under review the Nuclear Monitoring Group conducted 155 inspections at some 65 facilities, 16 of which were not previously inspected. It has not, since the IAEA's last

report to the Council, seen instances of activities or the presence, in Iraq, of equipment or materials proscribed by those resolutions.

34. The Iraqi counterpart has continued to co-operate with the IAEA in a practical way in the implementation of the OMV. They have been forthcoming in technical discussions, but persist in understating Iraq's achievements, as assessed by the IAEA, in their former nuclear weapons programme.

35. In the light of the IAEA's assessment of Iraq's pre-Gulf war nuclear capabilities, it is prudent to assume that Iraq retains the theoretical capability to produce nuclear-weapons-usable material, to fabricate nuclear weapons and to design and manufacture a missile delivery system. It is this assumption which forms the basis for the design, implementation and continuing development of the IAEA's plan for ongoing monitoring and verification in Iraq.

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